

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1.-12. (Cancelled)

13. (Original) An apparatus for scanning the surface of a specimen, using a Scanning Electron Microscope comprising:

a particle beam emitter for emitting a particle beam in a SEM; and

a deflection unit operative to scan the surface of the specimen by bending the particle beam at an angle relative to the orientation of the specimen, such that the particle beam traverses an angle that is not parallel or perpendicular to the orientation of the specimen.

14. (Original) An apparatus as recited in claim 13, further comprising:

a detector system for collecting the back scattered electrons deflected after traversing across the surface of the specimen.

15. (Original) An apparatus as recited in claim 13, wherein the specimen being scanned is a semiconductor wafer.

16. (Original) An apparatus as recited in claim 13, wherein the deflection unit deflects the particle beam at an angle relative to the orientation of the specimen in response to the application of an appropriate voltage potential to the particle beam deflecting means.

17. (Original) An apparatus as recited in claim 13, wherein the deflection unit deflects the particle beam at an angle relative to the die orientation within a range of 1° and 89°.

18. (Original) An apparatus as recited in claim 17, wherein the deflection unit deflects the particle beam at an angle relative to the die orientation within the range of 15° and 75°.

19. (Original) An apparatus as recited in claim 13, wherein the deflection unit deflects the particle beam at an angle relative to the die orientation within a range of 91° and 179° .

20. (Original) An apparatus as recited in claim 19, wherein the deflection unit deflects the particle beam at an angle relative to the die orientation within the range of 105° and 165° .

21. (Original) An apparatus as recited in claim 13, wherein the deflection unit deflects the particle beam at an angle relative to the die orientation within a range of -179° and -91° .

22. (Original) An apparatus as recited in claim 21, wherein the deflection unit deflects the particle beam at an angle relative to the die orientation within the range of -105° and -165° .

23. (Original) An apparatus as recited in claim 13, wherein the deflection unit deflects the particle beam at an angle relative to the die orientation within a range of -89° and -1° .

24. (Original) An apparatus as recited in claim 23, wherein the deflection unit deflects the particle beam at an angle relative to the die orientation within the range of -15° and -75° .

25.-35. (Cancelled)

36. (Previously Presented) An apparatus for scanning the surface of a specimen, using a Scanning Electron Microscope comprising:

a magnetic lens for generating a magnetic field in the vicinity of the specimen to focus the particles of the particle beam on the specimen, the magnetic lens having a central bore through which the particle beam travels;

an electrode having a potential for providing a retarding field to the particle beam near and at the specimen to reduce the energy of the particle beam when the beam collides with

the specimen;

a deflection system including a plurality of deflection units situated along the beam axis for deflecting the particle beam to allow scanning of the specimen, at least one of the deflection units located in the retarding field of the beam, the remainder of the deflection units located within the central bore of the magnetic lens, the deflection system operative to scan the surface of the specimen by bending the particle beam at an angle relative to the orientation of the specimen, such that the particle beam traverses an angle that is not parallel or perpendicular to the orientation of the specimen; and

wherein the specimen being scanned is a semiconductor wafer.

37. (Previously Presented) An apparatus as recited in claim 36, further comprising:

a detector system for collecting the back scattered electrons deflected after traversing across the surface of the specimen.

38. (Previously Presented) An apparatus as recited in claim 36, wherein the deflection unit deflects the particle beam at an angle relative to the orientation of the specimen in response to the application of an appropriate voltage potential to the particle beam deflecting means.

39. (Previously Presented) An apparatus as recited in claim 36, wherein the deflection unit deflects the particle beam at an angle relative to the die orientation within a range of 1° and 89° .

40. (Previously Presented) An apparatus as recited in claim 36, wherein the deflection unit deflects the particle beam at an angle relative to the die orientation within a range of 91° and 179° .

41. (Previously Presented) An apparatus as recited in claim 36, wherein the deflection unit deflects the particle beam at an angle relative to the die orientation within a range of -179° and -91° .

42. (Previously Presented) An apparatus as recited in claim 36, wherein the deflection unit deflects the particle beam at an angle relative to the die orientation within a range of -89° and -1° .

43. (Previously Presented) An apparatus for scanning the surface of a specimen, using a Scanning Electron Microscope comprising:

a magnetic lens for generating a magnetic field in the vicinity of the specimen to focus the particles of the particle beam on the specimen, the magnetic lens having a central bore through which the particle beam travels;

an electrode having a potential for providing a retarding field to the particle beam near and at the specimen to reduce the energy of the particle beam when the beam collides with the specimen;

a deflection system including a plurality of deflection units situated along the beam axis for deflecting the particle beam to allow scanning of the specimen, at least one of the deflection units located in the retarding field of the beam, the remainder of the deflection units located within the central bore of the magnetic lens, the deflection system operative to scan the surface of the specimen by bending the particle beam at an angle relative to the orientation of the specimen, such that the particle beam traverses an angle that is not parallel or perpendicular to the orientation of the specimen; and

a detector system for collecting the back scattered electrons deflected after traversing across the surface of the specimen.